

Amendment under 37 CFR 1.111
Serial No. 10/797,596
Attorney Docket No. 042184

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

LISTING OF THE CLAIMS:

Claim 1 (Original): A beam source comprising:
a plasma generating chamber;
a first electrode disposed in said plasma generating chamber;
an antenna disposed so as to face said first electrode for generating plasma in said plasma generating chamber;
a second electrode disposed in said plasma generating chamber so as to face said first electrode; and
a power supply for applying a voltage between said first electrode and said second electrode to extract ions from the plasma generated by said antenna.

Claim 2 (Original): The beam source as recited in claim 1, wherein said antenna is disposed outside of said plasma generating chamber, wherein said second electrode is disposed inwardly of said antenna.

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Claim 3 (Original): The beam source as recited in claim 1, wherein said antenna has a spiral shape, wherein said second electrode has a spiral shape positioned between adjacent spiral lines of said spiral shape of said antenna.

Claim 4 (Original): The beam source as recited in claim 1, wherein said antenna comprises a plurality of divided antennas, wherein said second electrode comprises a plurality of divided second electrodes positioned between adjacent divided antennas.

Claim 5 (Original): The beam source as recited in claim 1, wherein said first electrode comprises an orifice plate having a plurality of orifices for neutralizing the ions extracted from the plasma.

Claim 6 (Original): A beam source comprising:
a plasma generating chamber;
a first electrode disposed in said plasma generating chamber;
an antenna disposed so as to face said first electrode for generating plasma in said plasma generating chamber;
a second electrode disposed between said antenna and said first electrode in said plasma generating chamber, said second electrode having a ring shape so as to surround said plasma generating chamber; and

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a power supply for applying a voltage between said first electrode and said second electrode to extract ions from the plasma generated by said antenna.

Claim 7 (Original): The beam source as recited in claim 6, further comprising a container for defining said plasma generating chamber, said container having a wall which serves as said second electrode.

Claim 8 (Original): The beam source as recited in claim 6, wherein said first electrode comprises an orifice plate having a plurality of orifices for neutralizing the ions extracted from the plasma.

Claim 9 (Currently Amended): A beam processing apparatus comprising:
a stage for supporting a workpiece; and
a beam source for applying a beam to the workpiece supported ~~so as to face said beam source~~ by said stage, said beam source comprising:
a plasma generating chamber;
a first electrode disposed in said plasma generating chamber;
an antenna disposed so as to face said first electrode for generating plasma in said plasma generating chamber;

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a second electrode disposed in said plasma generating chamber so as to face said first electrode; and

a power supply for applying a voltage between said first electrode and said second electrode to extract ions from the plasma generated by said antenna.

Claim 10 (Original): The beam processing apparatus as recited in claim 9, wherein said antenna is disposed outside of said plasma generating chamber, wherein said second electrode is disposed inwardly of said antenna.

Claim 11 (Original): The beam processing apparatus as recited in claim 9, wherein said antenna has a spiral shape, wherein said second electrode has a spiral shape positioned between adjacent spiral lines of said spiral shape of said antenna.

Claim 12 (Original): The beam processing apparatus as recited in claim 9, wherein said antenna comprises a plurality of divided antennas, wherein said second electrode comprises a plurality of divided second electrodes positioned between adjacent divided antennas.

Claim 13 (Original): The beam processing apparatus as recited in claim 9, wherein said first electrode comprises an orifice plate having a plurality of orifices for neutralizing the ions extracted from the plasma.

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Claim 14 (Currently Amended): A beam processing apparatus comprising:

 a stage for supporting a workpiece; and

 a beam source for applying a beam to the workpiece supported ~~so as to face said beam source~~ by said stage, said beam source comprising:

 a plasma generating chamber;

 a first electrode disposed in said plasma generating chamber;

 an antenna disposed so as to face said first electrode for generating plasma in said plasma generating chamber;

 a second electrode disposed between said antenna and said first electrode in said plasma generating chamber,

 said second electrode having a ring shape so as to surround said plasma generating chamber; and

 a power supply for applying a voltage between said first electrode and said second electrode to extract ions from the plasma generated by said antenna.

Claim 15 (Original): The beam processing apparatus as recited in claim 14, wherein said beam source comprises a container for defining said plasma generating chamber, said container having a wall which serves as said second electrode.

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Claim 16 (Original): The beam processing apparatus as recited in claim 14, wherein said first electrode comprises an orifice plate having a plurality of orifices for neutralizing the ions extracted from the plasma.

Claim 17 (New): The beam source as recited in claim 1, wherein said antenna comprises at least one elongated conductive material.

Claim 18 (New): The beam source as recited in claim 17, wherein said at least one elongated conductive material has a hooked shape or an arcuate shape.

Claim 19 (New): The beam source as recited in claim 1, wherein said antenna includes a conductive material and an insulation member covering said conductive material.

Claim 20 (New): The beam source as recited in claim 1, wherein said antenna comprises at least one looped conductive material.

Claim 21 (New): The beam source as recited in claim 6, wherein said second electrode is disposed at a peripheral portion of said plasma generating chamber.

Claim 22 (New): The beam source as recited in claim 21, wherein said antenna has a

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spiral elongated conductive material.

Claim 23 (New): The beam processing apparatus as recited in claim 9, wherein said antenna comprises at least one elongated conductive material.

Claim 24 (New): The beam processing apparatus as recited in claim 23, wherein said at least one elongated conductive material has a hooked shape or an arcuate shape.

Claim 25 (New): The beam processing apparatus as recited in claim 9, wherein said antenna includes a conductive material and an insulation member covering said conductive material.

Claim 26 (New): The beam processing apparatus as recited in claim 9, wherein said antenna comprises at least one looped conductive material.

Claim 27 (New): The beam processing apparatus as recited in claim 14, wherein said second electrode is disposed at a peripheral portion of said plasma generating chamber.

Claim 28 (New): The beam processing apparatus as recited in claim 27, wherein said antenna has a spiral elongated conductive material.